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Information Series No. 124

BUSINESS/INDUSTRY/LABOR AND PERSONNEL DEVELOPMENT IN VOCATIONAL EDUCATION

written by

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1977

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FOREWORD

The Educational Resources Information Center on Career Education (ERIC/CE) is one of sixteen clearinghouses in a nationwide information system that is funded by the National Institute of Education. The scope of work for ERIC/CE includes the fields of adult-continuing, career, and vocational-technical education. One of the functions of the Clearinghouse is to interpret the literature that is related to each of these fields. This paper on the role of business/industry/labor in the preparation of vocational education personnel should be of particular interest to vocational and adult teacher educators and personnel who have inservice education responsibilities.

The profession is indebted to Lee Kopp and Orest Cap, The Center for Vocational Education, The Ohio State University, for their scholarship in the preparation of this paper. Recognition is also due Lucille Wright, Cleveland State University and Robert Bhaerman, The Center for Vocational Education, The Ohio State University, for their critical review of the manuscript prior to its final revision and publication. Marla Peterson, Associate Director of the ERIC Clearinghouse on Career Education, supervised the publication's development. Madelon Plaisted and Jo-Ann Cherry coordinated the production of the paper for publication.

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INTRODUCTION

PROFESSIONAL DEVELOPMENT: CHALLENGE

Many aspects of our highly technological society continue to fluctuate and change. As Toffler (1970) in *Future Shock* remarkably portrays, education has not been excluded from this process of change and modernization. Continuing advances in technology, fluctuating employment opportunities, and changing work requirements demand that all vocational education personnel have an up-to-date and sharp focus on providing relevant vocational preparation programs.

> Schools that become isolated from the rest of the community become isolated from the knowledge of what it takes for youth to participate in those other institutions, from how employing establishments view the developed abilities provided by the schools, from the resources throughout a community for enriching and extending the educational process, and from the reserve of good will, potentially existing for furthering educators' objectives. (Wirtz, 1977, p. 1)

Adequate preparation of vocational teachers is vitally important in the continued delivery of quality education vocational programs. Walter Tice (1976), chairman of the National Advisory Council of Education Professions Development, states in the letter of transmittal for *National Issues in Education Professions Development* the following view:

> While a strong emphasis in the legislation was improvement in the quality of teacher education. . .new and old teachers alike are not adequately prepared for the changes that society, technology, and the mandates of the courts have brought to the classroom.

Tice further believes that appropriate action should be taken to meet

> the critical need for more adequate substantive training for the nation's teachers. Without this, the quality of all education is itself in danger, and a disaster from which the nation will not soon rise lies before us.

Quinlan (1976), a consultant, in discussing professional competence, noted that there is a need for continuing education, or, as it is commonly called, *professional development*. One of the reasons she holds this view is that there is a need to protect the public from the professional who has not maintained competence.

Further supporting this view, Schaefer and Ward (1972) point out that

> no state has yet found a way to reflect the prestige of the professional updating needed to eliminate once and for all obsolescence on the part of educators. In contrast to business and industry, where personnel is singled out for development programs, the education profession leaves the process of inservice education, the updating of an individual, to one's own motivation and limited resources. (p. x)

Keeping up to date with new technologies, management techniques, and training techniques is a concern of business, industry, labor, and education.

PROFESSIONAL DEVELOPMENT: COOPERATION

Vocational education in our country can never be better than the quality of our vocational education personnel. To improve that quality and thereby maximize our contributions to society, a partnership and continuous interaction between universities, business, industry, and labor is needed.

Since the inception of federal support for vocational education in 1917 with the Smith-Hughes Act, efforts have been made to increase interaction between business, industry, labor, and education to provide relevant occupational preparation programs. Recently, the Vocational Education Amendments of 1968 placed even greater attention on vocational staff development and at the same time required a closer relationship between vocational education, industry, business, and labor. Provisions of the Education Professions Development Act, as described under the Vocational Education Amendments of 1968, Part F, Section 553(b) provided grants under this section for projects and activities, such as:

1. Exchange of vocational education teachers and other staff members with skilled technicians or supervisors in industry, and the development and operation of cooperative programs involving

periods of teaching in schools providing vocational education and of experience in commercial, industrial, or other public or private employment.

2. Inservice training programs for vocational education teachers and other staff members to improve the quality of instruction, supervision, and administration of vocational education programs.

3. Short-term or regular-session institutes, or other preservice and inservice training programs or projects designed to improve the qualifications of persons entering and reentering the field of vocational education.

In addition, the Education Professions Development Act (EPDA) provided funds to augment existing professional development programs, with special emphasis on satisfying the needs of the 1968 Amendments, those needs to be created by expanded interest in vocational education programs throughout the nation.

Burt (1967a) strongly believed that an industry-education alliance is a must, for if in our technological times

> industry and education ignore each other or fail actively to cooperate. . .the inevitable result is institutions turning out unqualified workers and industry suffering skilled manpower shortages.(p. 42)

President Gerald R. Ford, in his August 1974 Commencement Address at The Ohio State University, stressed this closer cooperation by calling for a blending of skills and intellect and by proclaiming a new emphasis on industry-education cooperation:

> I propose a great new partnership of labor and educators. Why can't the universities of America open their doors wide to working men and women, not only as students, but as teachers? Practical problem-solvers can contribute much to education, whether or not they hold degrees.(p. 8)

President Ford continued:

> show us how universities can work with industry and labor unions to devise a whole new community of learning across this great land. Show us how work-study programs can become a part of the ongoing educational process. (p. 9)

Argars (1964), in a study of 248 companies involved in public education over a decade ago, similarly expressed belief that a closer cooperation with business and industry can bring satisfying results to all concerned:

> In a day when knowledge is increasing at an alarming rate, many companies assume responsibility for helping teachers and college professors to keep up to date professionally, expand their knowledge, and improve their skills. The kinds of programs offered indicate that business and industry view better prepared teachers and improved instruction as one important key to better schools. (p. 58)

Leaders, therefore, in institutions of higher learning and in work places as well, need to recognize the mutually beneficial results of active business, industry, and labor education cooperation.

CONSTRAINTS

Connors (1972a), past president of the American Society for Training and Development, emphasized that after many years of lip service to the task of developing a closer business, industry, and vocational education alliance, no side seems to have found a way to break the communication barriers which prevent effective mutual assistance.

Although there are now a multitude of common partnerships with business, industry, and labor, there are also a number of factors that constrain this cooperation. Burt (1967a) identified the items listed below as the most frequently mentioned problem situations. Although Burt applied these fifteen problems to situations below collegiate level, they can also occur at the college/university level.

1. Confusion on the part of school administrators as to what they want from industry.

2. Lack of knowledge on the part of the school administrators of how to approach industry or how industry is organized.

3. Suspicion on the part of school administrators of motivations of industry in working with schools.

4. Fear of school administrators that industry groups will become special interest pressure groups.

5. Lack of willingness by school administrators to provide staff to work with industry in developing cooperative relationships.

6. Overemphasis by school administrators at local, state, and national levels on advisory committees as the sole technique for achieving industry cooperation.

7. Lack of understanding by school administrators of the role of the instructor in achieving industry-education cooperation.

8. Lack of coordination of industry participation in the individual schools of the school system by administrators at central office level.

9. Jealousy of prerogatives on the part of supervisory staff, at both the central office and individual school levels, so that industry participation in school programs becomes diffused and relatively impotent.

10. Preference by many supervisors of occupational education programs for developing and maintaining personal relationships with individuals in industry so that these individuals become supportive of the educator rather than involved in the program.

11. Confusion on the part of industry about how to effectively work with the schools.

12. Disillusionment on the part of industry resulting from inability to establish effective relationships with educators.

13. Lack of organization on the part of industry to effectively channel the desire to work with schools.

14. Lack of knowledge and leadership on the part of industry as to what they may rightfully demand of schools.

15. Lack of guidance from state officials, national educational organizations, and the U. S. Office of Education in providing realistic guidelines and adequate staff to enlist and encourage industry participation in school matters (pp. 39-40).

In the review of the literature, the following constraints were identified as common to the collegiate/university level:

1. Lack of administrative incentives for faculty participation.

2. Difficulty of obtaining administrative permission for faculty involvement.

3. Lack of administrative interest and support for cooperation.

4. Difficulty of obtaining release time for faculty to work in industry.

5. Industry reluctance to cooperate when the economy is down.

6. Failure of university policy regarding faculty work load to provide work load credit consideration for this type of activity.

7. Fear of involvement with industry on the part of some educators.

8. Failure of some faculty members to recognize the benefits of working with industrial leaders.

9. Belief of some administrators and educators that unions are hurdles that provide little worthwhile assistance.

10. Lack of funds, preventing closer cooperation and sufficient time to make contacts and maintain working relationships.

ROLE EXPECTATIONS AND REASONS FOR INVOLVEMENT

Schaefer and Ward (1972), in discussing the role expectations of business and industry, stressed that

> The too frequent "unsung" partners of the total vocational education effort have been business and industry. The coherence aspect of a functional personnel development system stems in a major way from the practices and technology that are employed at any point in time in the world of business and industry. To be embraced as a cooperative in the total effort has long been sought by the vocational profession. The realization of business and industry as a cohesive element--sticking together in the purpose and endeavor--has long eluded the profession. Role expectations of business and industry, as well as responsibilities and relationships in the process of personnel development, have been slow to be defined and evasive in clear identification. Yet here

lies one of the most valuable resources yet imagined (pp. 19-20)

Connors (1972b), in examining the role issue, states that

> a significant role for industry to play in the comprehensive personnel development system movement could well be the identification and promotion of the principles of leadership within the ranks of vocational education personnel (p. 238)

Connors also named the following as some basic reasons why business and industrial leaders should be interested in the creation of a strong partnership with vocational education in the area of teacher professional development:

- Industry uses the products of the vocational education system; quality of instruction is therefore of concern to them.
- Industrialists and their employees have sons and daughters enrolled in vocational programs; hence, they have a personal concern for the overall quality of the teaching staff.
- Business and industry in today's world can seldom afford to assume a head-in-the-sand role on any issue relating to the common good (p. 231)

Burt and Lessinger (1970) felt that

> the most important and pervasive single reason for industry volunteer involvement in public education is industry's concern for an assured continuing supply of well-educated and properly trained manpower (p. 3)

ALTERNATIVE APPROACHES

A number of alternative approaches for business, industry, and labor inputs into vocational teacher education are available. Thiele (1975), chairman of the National Advisory Council of Vocational Education and Director of Industrial and Community Relations, Whirlpool Corporation, suggested the following important ways in which concerned individuals in business and industry can assist the educational community. He specifically suggested the following approaches:

1. Enlist advisory committees, particularly the local crafts or trades advisory committees.

2. Provide input into local schools to develop and implement programs based upon current technology.

3. Design preservice and inservice teacher training programs.

4. Supply equipment.

5. Bring teachers into shops and plants to update them occupationally.

6. Implement cooperative education programs.

These approaches, however, to be successful, also need the support, interest, and participation of organized labor.

Some other approaches, identified by McCage and Musgrove (1975) of the Illinois Tri-County Industry-Education-Labor Council, show how educators could make better use of business and industry:

•Business and industrial representatives must be asked to become more directly involved in program planning processes.

•Business and industrial representatives must be used in day-to-day classroom activities.

•Educators must also learn how to go into business and industry facilities in search of real world educational experiences (p. 81)

Drawbaugh (1975), provided vocational educators with an overview of the current status of personnel development in business and industry across the United States through an intensive review of the literature, interviews with industrial trainers, and limited visits to corporate training sites and learning laboratories. He concludes his report with a number of predictions and the following recommendations for vocational educators:

•Look outside of education, to business and industry, for direction in improving your curriculum; otherwise, obsolescence and stagnation may prevail. Base curriculum on job analysis and use behavioral objectives for instruction and evaluation.

- Initiate an exchange program between your vocational education and industrial training staffs. Exchange visiting interns, externs, and trainers for visiting industrial professors, managers, and administrators.

- Explore funding sources outside education for support to train the unemployed and minorities, and to upgrade employed workers. The Department of Labor, revenue sharing agencies, business and industry, labor organizations, and others entertain proposals for fellowships, scholarships, and costs of training programs.

- Get actively involved with trainers and training directors of business and industry, government, and the military. Pay more attention to relationships which come from memberships and participation in the professional training associations and meetings of business and industry (p. 26-27)

It is evident that there is much to be gained for all concerned when cooperation takes place between business, industry, labor, and education.

HIGHLIGHTS OF CURRENT PRACTICES

An increasing number of efforts have been launched to bring business, industry, labor, and education together to develop and offer a viable professional personnel development program in vocational education. Many of these efforts have been quite successful, while others have been fleeting and poorly conceived. Recent literature emphasizes that a strong need exists to identify vocational teacher education departments that have developed effective strategies to maximize the input of business, industry, and labor in vocational education personnel development programs.

PERSONNEL EXCHANGE PROGRAMS

The personnel exchange program provides a two-way communication process to help meet the needs of education and business and industry. In personnel exchange programs, a person employed in business or industry is exchanged for a vocational educator. Few programs carry on a "pure" personnel exchange program; instead, several variations are usually developed to fit particular needs.

Benefits

Vocational educators at all levels too often become isolated from the current state-of-the-art in their particular service areas. The personnel exchange program provides opportunities for short-term, up-to-date work experiences:

- Knowledge of current trends and practices enhances credibility with students and members of the occupational community.

- Occupational experiences may improve classroom teaching and program/curriculum design.

- Communication and cooperative experiences provide opportunities to maintain a working relationship with business, industry, and labor, and include provision for liaison management structure, placement for future students or staff experience programs, and a source of personnel for advisory committees.

- Observation of management procedures may result in improved management practices in the department.

Business, industry, and labor representatives also benefit from such arrangements. More specifically, these representatives gain information about the objectives and processes of vocational teacher education programs. The communication and cooperative experiences provide opportunities to maintain a working relationship with the educational community, including provisions for being able to identify ways to assist educational agencies in providing relevant occupational education. Participants can also learn of new media or training devices/techniques that may have relevance for training in business, industry, and labor.

Prevailing Patterns of Programs

K. F. Brasted (1953) reviewed significant cooperative activities of industry prior to 1919, and presented a historical perspective. Brasted further examined industry-education cooperation in the United States and particularly in Connecticut.

More recently, Parks (1969) attempted to identify and then describe joint participation between teacher education institutions and industries in the United States in the initial preparation of industrial education teachers and in the upgrading of those already in service. Parks further conducted an in-depth study of twelve plans (industrial employment and nonemployment plans) for joint participation at the following institutions.

The employment plans of the following institutions were studied:

- Central Michigan University
- Indiana State University
- Kansas State College
- Kent State University
- Stout State University
- The University of Michigan
- Wayne State University

The nonemployment plans of the following universities were studied:

- Indiana State University
- Kent State University
- University of Missouri
- Wayne State University
- Western Michigan University

The following are some of the major conclusions resulting from this study:

- A gap exists between the depth and the currency of knowledges and skills taught in industrial education departments and those currently possessed by industrial workers.

- The coordinator or director is the key person in the successful functioning of a mutual involvement plan.

- Industry remains profit-conscious and participates in mutual involvement plans.

- Industry has adopted a cooperative attitude toward mutual involvement activities.

- Students enrolled in mutual involvement plans believe they benefit from written work required of them during the course of such plans.

- Except in federally subsidized plans, one of the greatest problems administrators face with mutual involvement plans is their adequate staffing in terms of released time for directors or coordinators (pp. 285-287)

University of Wisconsin-Stout (1974), under the sponsorship of the Wisconsin State Board of Vocational, Technical, and Adult Education, reported on a proposed statewide personnel exchange program that would provide vocational instructors with occupational experience opportunities. Three plans were considered for implementing the program. The

first plan involved a business or industrial representative and a vocational teacher exchanging positions for a stated period of time; the second plan called for employing a vocational teacher in industry, with the company supplying a part-time employee to assist in the vocational school's curriculum development; the third plan involved only the employment of vocational teachers in industry for a period of time. None of the above plans was implemented due to lack of industry interest.

Goad (1975b), Texas industry exchange coordinator, described the State Plan of Action for the Texas Personnel Development System for 1973-74, as recommended by the Advisory Council for Technical-Vocational Education in Texas. This Council proposed a workable personnel exchange with business and industry, based on the following four major objectives:

- Provide current training and work experience opportunities for vocational-technical education teachers.
- Assign noneducational exchange personnel to jobs in education for improvement of curriculum content, teaching methods, and student services.
- Stimulate the creation of a self-supporting industry, business, government, labor, and education personnel exchange system.
- Make public information on effective procedures for personnel exchange.

Largely through the efforts of the Advisory Council for Industry-Business and Education Personnel Exchange, working with the Texas Education Agency (Goad, 1975a), slightly over 100 exchange sites had been identified in Texas in 1975. These included training positions with the General Motors Training Centers, Sears Technical Center, Texas Bankers Association, Baylor University Medical Center, and the American Society for Training and Development.

During the school year 1974-75, there were approximately 226 participants in the Texas personnel exchange program. Participants received a stipend of $75 per week through the Texas Education Agency. Training periods ranged from two weeks to three months. Two types of criteria were used for selection of applicants:

- Business, industry, labor, or government personnel were chosen from those who had been responsible for employee training or who had helped develop inservice training, staff development, or other kinds of instructional programs.

•Vocational education teachers were chosen according to their ability to acquire knowledge in industry, business, labor or government and their ability to transfer knowledge so acquired to the classroom or shop. Applicants with five or more years of continuous teaching in the education sector received top priority.

In the 1970's, one of Oklahoma's first EPDA projects was thought to be an industry-vocational education exchange program sponsored by Southeastern Oklahoma State University at Durant. However, as the program progressed, it turned out to be more of an occupational skill updating program than a true exchange program. This "upgrading" project is currently in its fifth year of operation and continues to improve (DeVaughan, 1975).

Central Missouri State University also implemented a vocational education, business, and industry staff exchange project for distributive education teachers and trade and industrial teachers. This exchange plan attempted to improve the relationship between school and the world of work. Further, both parties became more aware of the other's needs and processes. Both secondary and post-secondary teachers are eligible to participate. The vocational teachers receive two semester hours of credit applicable toward renewal of vocational certification and/or a degree program. Each participating teacher and business representative must devote a minimum of six days to the program in the following manner: one day at CMSU for an orientation and planning session; two days at a business/industrial site (educator observes occupational practices); two days at the participating instructor's school (business representative observes vocational programs and participates as a resource person); one day at CMSU for an evaluation session (Garber, personal communication, April 1977).

A staff/industry exchange program for vocational teachers and administrators has been conducted in Appalachia, Kentucky. The project was funded by the Appalachian Regional Commission under the provisions of the Appalachian Regional Development Act Amendments of 1967 and operated out of the Professional Personnel Development Unit of the Kentucky Bureau of Vocational Education. The project involved vocational educators from four different universities in Kentucky in management and coordination positions. According to Robert E. Spillman, director of Program Supporting Services Division, Kentucky Bureau of Vocational Education,

> this has probably been the most effective personnel development technique we have utilized to build better relationships between the education community and

> business and industry. Teachers had an opportunity to develop technical skills in their teaching areas; but more importantly, a better working relationship has been established (personal communication, October 6, 1976)

Vocational education personnel who were selected to participate continued to receive their regular salary. Most of the exchanges took place during the summer months, when the participants were on extended contracts. Costs, such as travel and per diem, were reimbursed to participants at no cost to local systems (Thomas and White, 1976).

Wells (1974) described a setting in which the vocational educator was employed in industry for a period of time. The business or industry representative became involved, on a part-time basis, in assisting the education department in developing courses, preparing institutional materials, and/or presenting "expert" lessons. Such an inservice teacher/industry personnel exchange program was coordinated by McMillion of Virginia Polytechnic Institute and State University for Virginia vocational teachers. The program approach is adaptable to university/college settings. When a one-to-one trade-off of personnel was not possible, other types of exchanges were arranged. In one instance, teachers working at a tractor dealership received new equipment, class demonstration of new equipment, and career instruction in agricultural machinery. Teachers working with a local wholesale plant and flower producer received greenhouse tours and lectures on specific production procedures for their classes. The vocational educator learned about new procedures and equipment through industry tours and interviews for an intensive period of time; the industrial representative became involved in classroom instruction for a similar amount of time.

In their study, Larson and Valentine (1973) expressed the need for inservice and preservice teacher education to give greater relevance to teacher education and to help prepare teachers for a more effective role. The program operated for two years at Colorado State University with thirteen enrollees each year. Experienced vocational teachers exchanged positions with industrial representatives, instructors were placed in industry for one quarter, and graduate students worked in intern leadership positions.

University of Wisconsin-Stout also maintained technically up-to-date staff and instructional content of courses through an industry-education exchange program. An exchange program was established in the spring of 1968 between this institution and John Deere. Because this was the first attempt at exchange, certain arbitrary arrangements were

agreed upon to implement it. A technical area, in this case the field foundry, was selected. Each party carried the salaries of their respective employees. In addition, Stout covered all teacher's traveling expenses associated with the program; Deere and Company paid the living expenses of the teacher and that of its own representative (Entorf and Callender, 1969).

Responsibility for coordination of business-industry exchange programs ranges from individual institutions such as Stout State (Entorf and Callender, 1969) and Southeastern Oklahoma State University at Durant (DeVaughan, 1975) to statewide efforts such as in Texas and Kentucky. To alleviate the needs in the priority areas identified by the Nebraska Vocational Education Professions Development Advisory Committee, a full-time staff position of coordinator was created at the state department level. One of the major duties of this coordinator was to establish exchange programs with business and industry and vocational teacher education (Shook, 1973).

In summary, personnel exchange programs properly organized and implemented can be an effective and valuable method of professional staff development.

COOPERATIVE INTERNSHIP PROGRAMS

In this era of rapidly advancing technology, there is an urgent need for more and better qualified teachers to efficiently train our nation's workers. An internship, properly sponsored and coordinated by a teacher-training institution in cooperation with business, industry, labor, and other agencies, can help develop competent vocational teachers. Bjorkquist (1972), in examining the importance of internships in personnel development, felt that internships had the potential to provide relevant educational experiences that could not be obtained through university instruction. However, he believed the magnitude of this potential is highly dependent on the nature of the internship itself.

Internships are periods of time spent in business, industry, or other agencies in which the intern receives supervised occupational or professional experiences. The intern may or may not receive a salary. According to Nichols (1969) as reported by Sexton (1974),

> As one examines teacher preparation in vocational education it becomes readily apparent that two types of internships are appropriate and desirable: (1) the professional internship in which an individual with occupational experience and competency serves the internship in a school setting,

> and (2) the occupational internship in which an individual with professional preparation serves an internship in an occupational setting to gain experience and competency in that occupation (pp. 16-17)

Internships may also be arranged for relatively short periods during the school year; others may be very extensive. Some participants may be interested in new experiences in business or industry, while others may desire advanced or exploratory experience.

In discussing significant trends in professional development, Adams (1976) said that the use of the cooperative concept for preservice and inservice education looks promising, and is catching on rapidly at institutions of higher learning. He further noted that

> Cooperative education as a part of the initial preparation program for teachers in the trades may be the profession's best option for meeting the growing demand for new teachers (pp. 25-26)

Benefits

A number of benefits to the intern, institution, and sponsor can be derived from cooperative internship programs. The following are possible benefits:

- Promotes business, industry, labor, and vocational education.
- Enables inservice and preservice teachers to earn while they learn.
- Allows interns to associate with representatives of businesses, crafts, and trades in order to exchange ideas.
- Lets interns observe, first-hand, changes that may reflect new skill needs at the university.
- Allows for closer cooperation between all parties.

Prevailing Patterns of Programs

An inservice program for high school teachers organized by a university has been described by Majure and Robbins (1971). Agricultural education supervisors in the Mississippi State Department, in cooperation with the agricultural teacher education staff at Mississippi State University, developed an inservice training program

for ten teachers in off-farm agricultural occupations. Teachers were employed on an interim basis for three weeks or more in related businesses and industries. Objectives were established for the program designed to prepare teachers with the competencies to plan, instruct, coordinate, and evaluate programs in off-farm agricultural occupations.

In 1966, the Training and Technology (TAT) Project, an industry-university partnership, was organized by the Oak Ridge Associated Universities, a nonprofit corporation sponsored by forty-one colleges and universities in the South (Figure 1). This project combined the resources of the Union Carbide Corporation, operators of the plant for the U.S. Atomic Energy Commission, with the teacher training personnel of the University of Tennessee.

The TAT project included two main components: worker training and a Teacher Institute. Worker training involved training of disadvantaged youth and adults in selected vocational fields. The Teacher Institute, initially an EPDA funded program, included (1) a preservice technical and trade and industrial teacher program, (2) inservice training of technical and trade and industrial teachers, and (3) graduate leadership internship training. In 1970, the program grew to include programs to aid individuals at their current industrial jobs and to prepare them for better job opportunities. All of the educational activities are conducted at the plant site (Merrill and Russell, 1968).

The Teacher Institute at Oak Ridge demonstrated the following:

1. An industry-university partnership can be operated with mutual benefit to both organizations: for example, laboratories, shops, and equipment, not otherwise available for training at a university, and specialized technical instructors and university training, not otherwise available to industry, can be used.

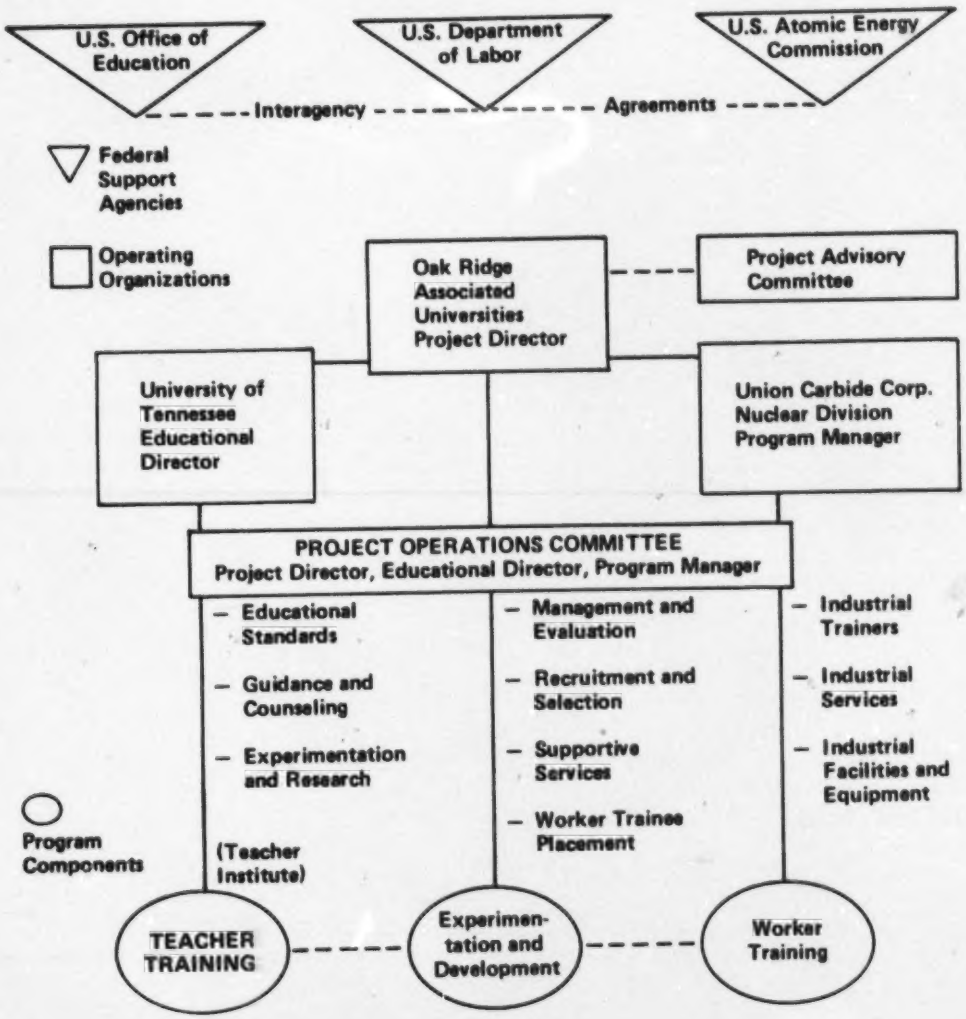
2. Technical and professional preparation courses can be developed that are acceptable to both academic and industrial personnel.

3. Industrial employees are interested in and can receive university credit toward a degree in industrial education.

4. Those enrolled in university courses in industrial education find them of immediate benefit to their jobs.

5. Industrial workers can be recruited as a resource pool of trained prospective vocational-technical teachers through enrollment in the partnership program.

TRAINING AND TECHNOLOGY
Project Support, Organization, and Components



Cooperating Agencies

Tennessee Department of Employment Security
Tennessee Division of Vocational-Technical Education
Oak Ridge Schools—Adult Education Program
Units of Organized Labor

Figure 1

6. An industry-university partnership provides an excellent three-week inservice teacher technical updating program.

7. Military veterans are interested in and can profit by the industry-university partnership prospective teacher preparation.

8. The industry-university partnership program provides an internship environment for the technical upgrading and updating of graduate students.

Similar partnerships were established at the Lockheed Plant in Marietta, Georgia, and at the NASA facility at Langley Field, Virginia (Merrill and Russell, 1968, and Brown, 1970, 1974b).

Southern Illinois University (Stitt, 1969) offered a course entitled "Structured Occupational Internship for Experienced Vocational Teachers," with full cooperation of the Research Coordinating Unit of the Illinois Board of Vocational Education and Rehabilitation, in response to agricultural teachers who needed to upgrade their occupational competencies as well as to maintain proficiency once it was achieved. Teachers in the internships were placed with suitable training stations in other school districts, not their local one, to broaden their involvement. This course offered three effective types of experiences, each including specified sets of activities for (1) preinternship preparation, (2) internship, and (3) postinternship program.

A distributive education internship was offered on a pilot-project basis as part of a summer session workshop at Arizona State University for both secondary and postsecondary teachers. Teacher-coordinators participating in the project spend approximately one to three weeks in the management training program of a local business firm, with the specific amount of time being determined by the coordinator's needs. The University of Minnesota and Virginia Commonwealth University similarly were studying the feasibility of including the concept of the distributive education internship as part of their Distributive Education Teacher Education Programs (Hutt and Rowe, 1977).

The Department of Business Education at the University of Southern Mississippi has a unique professional internship program for faculty members. Educators participating in such an internship receive no pay on the job, and they work either mornings or afternoons for a quarter of the university calendar. Faculty members have already held positions in banks, legal courts, medical clinics, insurance agencies, post offices, data processing centers, and city/county schools. As an incentive, participants receive full pay and their teaching load is reduced by half (Bonner, personal communication, June 1977).

McEnge (1953) as reported by Parks (1969) outlined three different types of cooperative or internship programs:

- A four-year college training program which includes two three-month periods of internship as part of the four-year industrial teacher curriculum.

- A five-year industrial arts curriculum which includes twenty-one months of organized work experience, one quarter of practice teaching, ten quarters of training in general education and professional courses, and training in ten different technical shop subjects.

- A five-year vocational-industrial education curriculum, including the same amount of general and professional education and periods of industrial internship as the industrial arts curriculum. The latter requires training in several industrial shops, but the student enrolled in the vocational-industrial education program will devote to one shop all the required time allotted for the shop experiences (p. 243)

An internship program for occupational teachers involving industry exchange, curriculum building, career education, or leadership development experiences was conducted by Colorado State University. This project attempted to gain further insight into the operational aspects of internship programs, while providing opportunities for both graduate and undergraduate vocational students, as well as potential vocational teachers, to better prepare for service in vocational programs (Larson and Valentine, 1974).

A study was conducted at Eastern Illinois University to develop and implement a system of inservice work experience internship programs for occupational education teachers. The unique characteristic of this project was determining the means by which occupational education teachers could receive released time for a minimum of forty hours to gain skill upgrading and work experiences. Twelve teachers representing all occupational areas participated and individualized programs of personal development were established with the cooperation of the teacher participants, academic advisors, and business and industrial personnel (Sexton, 1974).

The Georgia State Department of Education, in cooperation with the University of Georgia, provided through "Project Update" an opportunity for all vocational teachers, secondary and postsecondary, to participate in a learning experience to upgrade their occupational knowledge and skills. Vocational teachers were placed in formal training sessions and in structured work experiences in business, industry, agriculture, and other selected areas (Storm, 1976).

In Louisiana, a three-week summer internship program dealing with the latest farm machinery equipment and wood industries was offered to seventeen vocational agriculture teachers, enrolled in the Graduate School at Louisiana State University for three hours credit (Colvin, 1971).

Syhlman (1972) reported on a USOE-EPDA internship project conducted through Eastern Washington State College. The project combined the concept of internship with a personnel exchange between business-industry representatives and vocational teacher coordinators of corresponding cooperative education programs. An additional emphasis of the project was special consideration to students with special needs. The cooperating agencies are named in Figure 2.

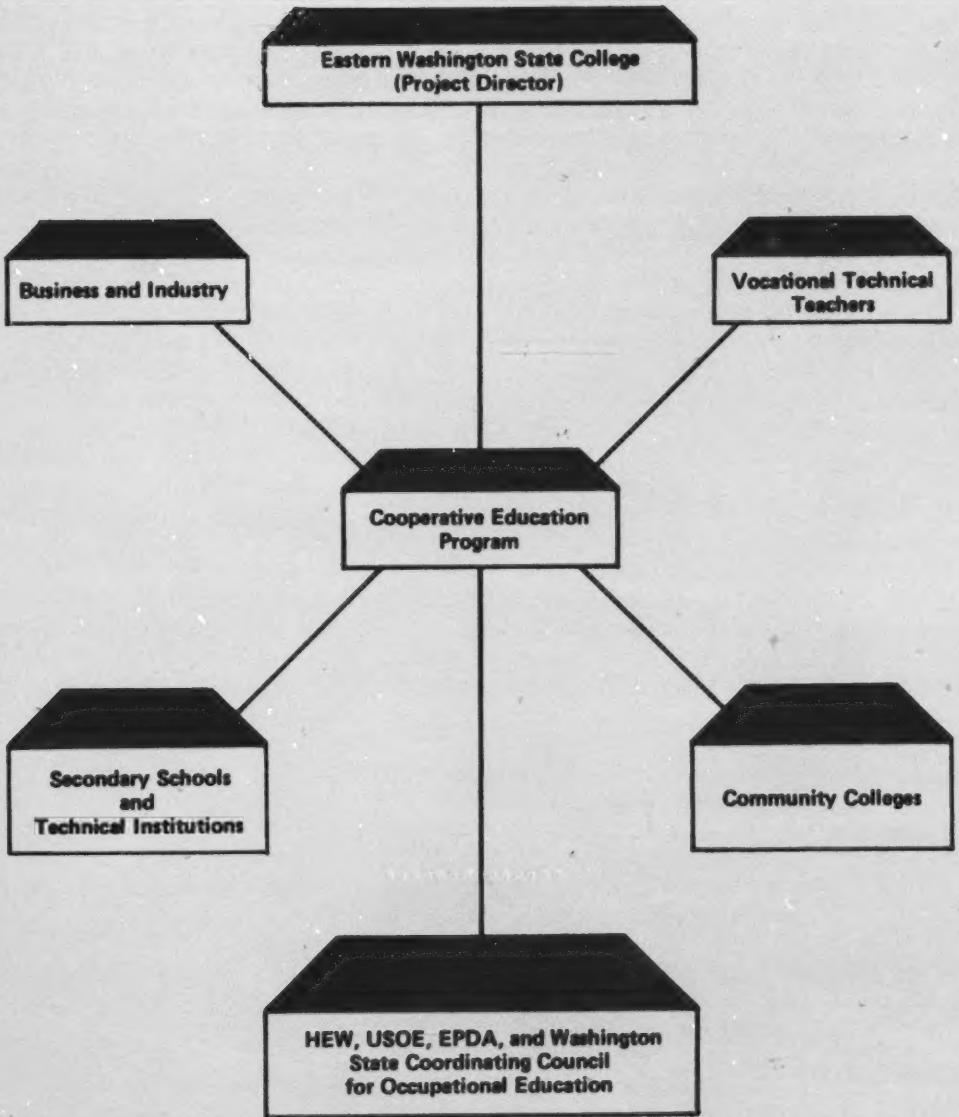
The project was conducted in two phases: Phase One--1970-1971 and Phase Two--1971-1972. In each phase ten different locations throughout the state of Washington were established as cooperative centers. These centers were composed of secondary schools, technical institutions, and community colleges. Both educational staff and business and industry representatives participating in the exchange portion of the program took part in a five-day orientation period, a ninety-hour exchange, and a three-day summary and evaluation session. Educational representatives and business and industry representatives were teamed not only for the personnel exchange, but for the student's cooperative work experience and for the final evaluation. Oklahoma State Department of Vocational and Technical Education also conducted programs similar to Syhlman's internship-in-industry project.

Larson and Valentine (1973) suggest that an excellent way of helping teachers to keep appraised of change is through the internship program, such as the one structured under a grant from the Colorado State Board for Community Colleges and Occupational Education. More specifically they recommend that

> Money, resources, and persons interested in improving teaching must be found; otherwise learning will not be achieved at the level desired by either the students or the prospective employers. The index of accountability is teacher competence; the relevance of education is a direct reflection of teacher competence (p. 21)

Bowling Green State University offered prospective business education teachers a work experience program entitled "Internship in Business Education." Students perform all the regular and general office duties under the supervision of the business education department. Forty clock hours of work for each quarter-hour of college credit is required by

Figure 2. Cooperating Agencies in Internship Project
Conducted at Eastern Washington State College



the course and may be repeated to three hours. Up to eighty clock hours of work experience may be waived if the student has completed at least forty hours in two separate office positions. Prospective instructors in this program have an opportunity to familiarize themselves with the latest business office equipment (Goddard, 1970).

Another coordinated occupational internship for experienced vocational teachers and counselors was in operation for one summer at the University of Northern Colorado, with twenty enrollees (Shook 1973).

The Department of Agricultural Education at Louisiana State University developed an undergraduate course, "Internship in Nonfarm Agricultural Occupations." This course was designed for students completing their junior year, preparing to teach vocational agriculture in secondary schools. Six semester hours credit was granted upon successful completion of this course. Students enrolled in such a course were placed in three different nonfarm agricultural businesses for a period of forty hours in each establishment. Prior to the beginning of the internship, an agreement detailing everyone's responsibilities was signed by the parties concerned. Concurrently with the internship, students attended class for two hours a week for related classroom instruction (Smith, 1975).

Students at Ferris State College transfer to the School of Education after they have completed six terms of concentrated technical education and earned an associate of arts degree. Trade and industrial students enrolled in the secondary option complete twenty to forty-five hours of paraprofessional internship at area high schools; another eighteen quarter hours of industrial internship credit are granted for two terms of field-time supervised work in industry. A competency examination can be taken by the student teacher if the three-year requirement has been satisfied (Storm, 1974).

Central Michigan University's undergraduate program included a five-year plan. The first two years were spent on campus; the last three years consisted of semesters of alternating between on-campus courses and on-the-job paid internships. One of these internships was a ten-week summer full-time internship in industry (Parks, 1969).

More recently, Yoder and Bender (1976) at The Ohio State University Agriculture Education Department searched for ways to improve the preservice and inservice teacher education curriculum. They developed and implemented a cooperative occupational internship program in agricultural occupations for undergraduates aspiring to become agricultural teachers. A total of fifty-two student-interns were involved

with this program during the 1975-76 school year, and a full-time coordinator with full faculty status was assigned to coordinate this internship program. As a result of the study, the investigators concluded the following:

- Many valuable occupational experiences may be acquired through structured internship work experiences in agricultural businesses.

- The placement of student-interns in agricultrual businesses facilitates the continued development of closer ties and relationships between the university and agricultural businesses.

- Agricultural businesses and personnel in such businesses are interested in and supportive of the occupational internship program (p. 29)

Another professional internship exchange program in cooperative vocational education in Washington State provides teacher-coordinators with professional experience in a related business or industrial firm. Business/industry was also given an opportunity to be involved in the teaching process (Shook, 1973).

In the neighboring state of Oregon, Oregon State University (n.d.) also implemented an occupational internship program, which provided supervised occupational training for business, marketing, home economics, industrial, and agriculture students planning to become teachers.

A National Association of Industrial and Technical Teacher Educators (NAITTE) task force (1976) examined the opportunities for upgrading technical competencies of industrial educational personnel through industrial experience. The task force, however, after preliminary investigation, focused on cooperative vocational-industrial teacher education programs. Survey results indicated that out of 223 vocational-industrial teacher institutions, ninety institutions, or forty percent, were reported as having cooperative programs in operation. An important conclusion of this study was that the college/university cooperative program offered greater long-term potential than the individual teacher employment programs of teacher-industry exchange programs. Further, the study recommended that some action be taken regarding significant problems identified through the study, including the following:

- A general absence of advisory committees.
- A general absence of documentation, student contracts, etc. (pp. 13-14)

Rutgers University, University College Division, with support from the Ford Foundation, as reported by Pautler and Buzzell (1968), established the Cooperative Occupational Preteaching Experience Program (COPE). Upon graduation, interested high school seniors are interviewed and, if selected, enroll in a program of late afternoon courses. Simultaneously, the student is placed in an occupation by the cooperative program coordinator with an employer willing to participate. Approximately 5,000 hours of work experience is required in this program to obtain twelve semester hours toward a B.S. degree. The student must also successfully pass an occupational competency test.

Beasley and Smiley (1971) have identified eleven universities with business and industry linkages that offer occupational experience programs for vocational-technical teachers.

Shook (1973) reported a cooperative exchange program with industry for vocational education professional personnel, held for two summers by the State Board of Vocational Education, Hartford, Connecticut, for twenty participants to work in related industry for approximately six weeks.

In another state, the technical and professional preparation needed for teaching vocational and technical subjects was provided through a cooperative work-study plan by the Department of Industrial Education at Wayne State University. Experienced industry persons were encouraged to become vocational and technical teachers by meeting degree or certification requirements. In the preparation of its teachers for vocational education, Wayne State University used the resources of community industries; it also placed great emphasis on helping the experienced tradespeople and technicians relate their industrial experiences to the development of needed instructional materials for teaching (Silvius, 1967).

Sometimes the problem is not preparing prospective teachers but of finding unique facilities or sources of professional upgrading available to practicing teachers or faculty. To overcome this, Larson (n.d.), in a project at Rutgers University, suggested a Vocational-Technical Teacher Technology Center--a model center specifically designed for keeping present and future vocational personnel aware of any new developments in technology, new hardware, and new pedagogical and androgogical developments.

George Storm (1976) of Ferris State College, on the other hand, demonstrated in his report that opportunities for professional improvement exist in most occupational fields and that there is a wealth of excellent technical upgrading opportunities available in

most regions. Even though the article stresses the upgrading of postsecondary vocational-technical instructors, the author also examined a selected variety of business, industry, labor, and university level programs, thereby giving the reader an up-to-date overview of technical upgrading programs in the United States. No attempt was made in his report to compile a comprehensive list of training programs. In the same vein, Butler (1974) in his study explored essential dimensions of an information system to facilitate vocational-technical teachers' awareness of business and industry programs.

In summary, cooperative internships, as expressed by many researchers and leading educators, are a possible mode of training personnel for new responsibilities, as well as keeping instructors and/or faculty constantly up to date.

BUSINESS/INDUSTRY/LABOR PROGRAMS

The growing importance of increased business, industry, labor, and education cooperation has been discussed by a multitude of prominent educators and business, industry, and labor representatives. Pecka (1972), for example, a training development manager with the Western Electric Corporate Education Center, wrote:

> Industry is involved in education/training in a big way and must be involved for its own survival. (But) . . .industry needs you and is willing to work with you, shoulder to shoulder, to bring about change (p. 48)

Edwards (1975), in discussing trade unionism in American education, stated:

> Speaking of labor, vocational education conducts most of their programs as though trade unionism was not a fact of life. Through its efforts, it has brought most of the social changes that we all enjoy: free public education, social security, retirement reform, minimum wage, and has done more to save the economy of the United States than any other group. On Capitol Hill and at the White House, organized labor has been one of the closest friends that vocational education has and it is time that it is included in all curriculum (p. 39)

Lieberthal (1967) similarly supported this view by stating:

> The labor movement includes many unions in basic industries, printing, service occupations, and government employment. These unions represent potential but largely untapped community support for vocational education (p. 49)

Labor represents a unique resource in that its community involvement is frequently masked by the public's perception of labor as simply advocates for union membership while on a job. In reality, many unions are extremely community oriented, have an abiding interest in the total welfare of their members, including education, and can back up their interest with personal representation and other resources.

An active interaction and communication with business, industry, and labor is therefore required, and an entirely new relationship is needed between education and the private sector. This relationship demands an open university administrative environment that minimizes the barriers between the institution and the private sector and encourages a thorough, two-way flow of communication.

Benefits

Educators and teachers tend to view business, industry, and labor from widely different perspectives and to hold conflicting points of of view regarding their contributions to the community and to institutions of learning. But educators need to be conscious of the wealth of educational potential available from the world of work. Potential benefits include the following:

- Provides a forum for the exchange of ideas and information.
- Assists in improvement of instruction in schools by updating teacher and educator competence.
- Provides an opportunity to use unique resources for the enrichment of education.
- Provides an opportunity to become acquainted with selected business and industrial offerings and their needs.
- Provides an opportunity to participate in some business, industry, and labor project that has implications for enriching educational programs.

•Brings educational resources together.

Prevailing Patterns of Programs

Many organizations across this country are in some way substantially engaged in the support of human services. A look at some industry-education activities will provide a better understanding, appreciation, and support for business, industry, and labor.

INDUSTRY-EDUCATION COUNCILS

Education and work councils have sprung up around the nation for a number of reasons--to bring together local education, labor, business, and industry representatives, because of high youth unemployment, and to better the public image of business. A strong industry-education alliance can strengthen the institutional program at various levels in our schools. The Niagara Falls Area Industry-Education Council of New York is an example of such an alliance. This council regroups decision-makers from business, labor, government, education, agriculture, and the professions. The following are some of the important functions assumed by this council:

•To bring all the educational resources within a community together.

•To serve as a systemwide umbrella for coordinating industry-education cooperation.

•To help mobilize key resources in the community, and develop plans for their allocation (Clark, 1976).

The Texas Industry Council, under the leadership of Dr. Walter Kerr, coordinator for Industry-Education-Labor for the state of Texas, as reported by Goad (1975a), is another council which continues to gain momentum and increased involvement from a number of groups.

During the 1974 school year, the Flint, Michigan, Business-Education Coordinating Council coordinated a number of activities. For example, thirteen employers from business, industry, and government provided job exposure for twenty-six educators from thirteen school districts. The University of Michigan agreed to provide graduate credit to the participants and local business offered scholarships (Mendez, 1974b).

McCage and Musgrove (1975) focused on and described the success of the Tri-County Industry-Education-Labor Council in Illinois. This

cooperation is another excellent example of how both the research process and the local input process can work together to identify and solve problems in a community.

Mendez (1974b), federal coordinator for Industry-Education-Labor, in his *Progress Report on Industry-Education-Labor Relations*, also reviewed the highlights of industry-education-labor activities in the United States.

An essential element of any successful industry-education-labor cooperative program development is communication (Duet, 1975). Dialogue can begin to improve the quality of education jointly. Hence, many states have set up industry-labor-education coordinator positions. For example, industry-education contacts are facilitated in New York State through the office of the industry-education coordinator (Ullery, 1975). An illustration of how New York industry and education provide cooperative experiences for teachers and students is briefly described by the state's industry-education coordinator:

> Just as I believe very sincerely in work experience for students, I believe in it just as sincerely for teachers. Last year, we had a curriculum development project in which teachers were afforded an opportunity to spend one-half day in industry and other half-day developing related curriculum material. This project was carried on in five colleges. Three hundred teachers applied for this program and were rejected, not because they weren't qualified to participate, but because the programs just did not have sufficient capacity to handle them (Ullery, 1973, p. 22)

Cooperative and collaborative effort between business, industry, and labor doesn't stop there, but continues to flourish in other ways. In Louisiana, the Louisiana Shipbuilders Association is involved in the production of career education curriculum guides and in the exchange of full-time and resource personnel on a scheduled basis. On January 17, 1973, the General Executive Board of International Brotherhood of Teamsters adopted a policy statement on education supporting USOE's industry-education action concept, declaring their belief in working closely with federal, state, and local agencies and governments to provide education responsive to changing needs (Mendez, 1974b). The United Auto Workers Union also adopted a policy statement on career education (United Auto Workers, 1976).

WORKSHOPS, SEMINARS, AND CONFERENCES

Workshops. Community Resource Workshops, organized and developed by the National Association for Industry-Education Cooperation (Ayars, 1975), are educational programs in which instructors come together from a local community for approximately six weeks during the summer to study the available teaching resources in the community. A sponsoring university and/or college usually grants graduate and undergraduate credit for the program. These programs have been held in the states of Michigan, New Jersey, Ohio, New York, Indiana, and Washington.

Funds for the workshops are raised locally from industry, business, labor, and education. The National Association of Manufacturers (n.d.) provides guidelines for organizing community resources workshops in its booklet *Community Resources Workshops: A First Step Toward Better Industry-Education Cooperation.* Characteristics, planning, and anticipated outcomes from a university-sponsored four- to six-week course are described in the booklet.

Seminars. Periodic seminars on the economics of the steel industry are conducted for educators by the American Iron and Steel Institute. The seminar had been hosted by the University of Pittsburgh's Graduate School of Business for seventy educators from colleges and universities in four states. Seminars range from two to five days and cover many of the major issues currently facing the steel industry: capital formation, pollution control, energy availability, international trade, government regulation, and labor relations. Activities include presentations, question and answer sessions, group discussions, and mill tours. No two seminars are exactly alike, but all the seminars share the following characteristics:

- The American Iron and Steel Institute's Committee on Education Cooperation serves as the sponsoring agency.
- The seminar is organized around the broad general topic of steel industry economics.
- The seminar is held on the campus of a sponsoring university or college, which serves as cosponsor.
- Content of the seminar is mutually determined.
- The entire seminar is off the record to encourage frank and confidential exchange of ideas.
- A half-day is devoted to a tour of a large nearby steel plant.

•The number of participants from the universities has varied from thirty to forty professors; about half that number attend from industry.

•American Iron and Steel Institute pays all expenses--travel, rooms, and meals of participants--and reimburses the sponsoring institution for all out-of-pocket costs (American Iron and Steel Institute, 1973).

Conferences. The Pennsylvania Advisory Council for Vocational Education, the Department of Vocational Education, and the Department of Labor Studies at the Pennsylvania State University recently sponsored a conference on Labor-Educator Leaders Exchange on Vocational Education. The overall objectives of this conference were to develop a framework which would allow a relevant dialogue exchange between labor and educational leaders for the enhancement of vocational education in Pennsylvania. Conference participants, the vocational directors and supervisors of Pennsylvania, were surveyed before the conference to help identify and rank the issues to be discussed at this conference. Twenty-three participants representing labor and education from throughout Pennsylvania were invited to attend a two-day conference held at Penn State to discuss the issues and questions identified by the survey. Participants then arrived at conclusions and made recommendations (Evans, 1976).

Hamilton, 1972, described some cooperative activities between business, industry, and education aimed at helping teachers update their instruction and knowledge of the world of work. According to the author, many persons interested in such activities are not aware of their existence and where they are held:

> For eighteen years, principally in four or five northern states, summer programs for teachers have been conducted under the auspices of the National Community Resource Workshop Association. These programs involve a university, local business, and industry, and of course teachers K-12 (p. 70)

In Detroit, General Motors works closely with the Chamber of Commerce and local educators by providing classroom instruction at the college level for high school teachers and counselors, participating in in-service workshops (Mendez, 1974b), and by providing internships of four to six weeks each summer for high school counselors and teachers.

A number of states have taken positive steps to alleviate the problem of personnel development in vocational education through certification requirements. For example, the Minnesota State Plan for Vocational

Education requires evidence of 108 clock hours of updating activities for each five-year vocational certificate renewal. This can be achieved through participation in industrial conferences, institutes, and seminars in business and industry which are rated on clock-hour basis. Idaho's State Plan contains similar requirements for technical upgrading (Storm, 1976).

PLANT VISITS

General Electric, as reported by Sweeney and Shafe (1976), is involved in programs entitled "Educators in Industry." The concept was pioneered in Louisville, Kentucky, and in Lynn, Massachusetts, where General Electric has long-standing relationships with the city's secondary school systems and local universities. The Educators-in-Industry programs are conducted during the school year for teams of secondary school teachers, counselors, and administrators. The programs are planned and implemented by local college faculty in cooperation with representatives from local industries. Two universities, Western Kentucky and the University of Louisville, cosponsor the Louisville program, while Boston University plays a leading role in the Lynn program. All programs carry graduate credits with additional credit hours available for projects implemented as a follow-up to the seminars. This program is comprised of a series of two- to three-hour sessions conducted for twelve to fifteen consecutive weeks and supplemented with plant visits.

FELLOWSHIPS

Price Waterhouse (1974) offers a Faculty Fellowship Program, now in its eighteenth year. Under this fellowship, invited faculty members become part of an office's operations. The Faculty Fellows' involvements represent a wide spectrum, including studying the firm's continuing education program, reviewing audit techniques, researching specialized accounting areas, and analyzing use of computers in auditing. Participants are offered an opportunity to keep up with current operations of a large public accounting firm.

Arthur Anderson and Company (1975) has organized a six-fold program with the following available:

- A number of fellowships each year to enable prospective accounting teachers a career at the university level.

- Matching contributions by the foundation.

•Practical experience and research opportunities in public accounting through faculty residencies for professors of accounting.

•The firm's research facilities available to selected university professors of accounting.

•Copies of "Cases in Public Accounting Practices," distributed without charge to university libraries.

•Educational films and qualified speakers (p. 1)

BUSINESS/INDUSTRY TRAINING PROGRAMS

A limited amount of research has dealt with business-industry training programs for vocational-technical education teachers. The following research reveals some of the offerings.

Shrader (1967) as reported by Butler (1974) in his study found that fifty-four colleges and universities cooperated with eighty-three major industrial training centers to offer credit for factory-school training. One of his major conclusions was that many institutions of higher learning consider this training a complement to training within the industrial education departments and a valid means of securing college or university credit.

Wenig and Wolansky (1972) felt that vocational technical educators should study job training programs and policies in industry to help them update their school curricula. Furthermore, they suggest that information is needed on how to build solid cooperative linkages between business, industry, and vocational-technical education.

Oxe (1966), in his survey of eighty-one selected automobile manufacturers' training programs, found that most of them would accept education personnel into their programs.

Maxwell (1969) in his study identified industrial training programs in which industrial education personnel could participate. He identified thirty-nine different organizations that offer a variety of courses open to industrial education teachers. A major conclusion of the study was that low cost training opportunities are available, and that industry is willing to assist in improvement of instruction in schools by updating teacher competence.

Somers et al. (1971), in a study conducted on company training programs in Wisconsin, found that 170 of the 248 business firm respondents had some type of training program. Larger companies,

with 500 or more employees, however, tended to have a greater number of training programs than smaller firms.

There is little doubt that interest exists to bring vocational-technical education teachers into closer contact with business, industry, and labor.

SUMMARY OBSERVATIONS

This paper has focused on the program development aspects of business, industry, and labor linkages concerning:

- Advantages of educators establishing linkages with business, industry, and labor.
- Constraints to establishing these linkages.
- Successful examples of linkages, including cooperative internships, personnel exchange programs, use of resource persons, staff development, and business/industry/labor programs.

This review provided an opportunity to draw some observations concerning the present state of business, industry, and labor linkages with vocational teacher education departments. These observations indicate the following:

- Because of the significant role the private sector can play, interaction with business, industry, and labor is becoming much more popular.
- Specifications and requirements for business-industry-labor involvement are being considered by more states, as are certification training requirements.
- Because of the lack of adequate documentation that has been included in the major information systems, higher education indicates just the beginnings of the awareness of the need to become involved.
- Secondary and postsecondary institutions show greater involvement in linkage than university vocational teacher education departments.
- A limited description of operational procedures and absence of sample exhibits and model implementation procedures exists.

- A number of organizations are substantially engaged in support of linkage activities.

- A number of constraints still prevent effective mutual assistance with business, industry, labor, and vocational teacher education departments.

- Many programs are becoming more formalized in terms of number of people involved, funding, and support.

- The need for teacher education institutions to build a more solid relationship with business, industry, and labor to give greater relevance to teacher education and to help prepare or update teachers for a more effective role in this country is recognized in a number of states.

- Cooperative experiences provide excellent opportunities for maintaining a working relationship with the private sector.

- More vocational teacher education institutions are making cooperative internships an available option and are offering a variety of plans.

- Business, industry, and labor have adopted a cooperative attitude toward involvement with vocational teacher education departments.

- Diversified number of faculty exchange programs are gaining visibility, thus improving the articulation of training programs and working relationships between vocational education and the world of work.

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